

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A perpendicular magnetic head, comprising:

a first magnetic pole having a portion thereof that is exposed at an air bearing surface

(ABS) of the magnetic head;

a second magnetic pole including a pole tip thereof that is exposed at said ABS;

a heating element;

an induction coil structure that is disposed between said first magnetic pole and said second magnetic pole, and wherein said induction coil structure includes a plurality of coil turns

and an insulation layer that is disposed upon said coil turns; and

wherein said heating element is disposed between said insulation layer and said pole tip.

~~wherein said heating element is disposed between said induction coil structure and said pole tip.~~

2. (cancelled)

3. (original): A perpendicular magnetic head as described in claim 1 wherein said second magnetic pole includes a shaping layer that is disposed in magnetic flux communication with said first magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer is disposed in magnetic flux communication with said shaping layer.

1 4. (withdrawn): A perpendicular magnetic head as described in claim 3 wherein said
2 shaping layer is disposed between said heating element and said pole tip.

1 5. (original): A perpendicular magnetic head as described in claim 3 wherein said probe
2 layer is disposed between said heating element and said shaping layer.

1 6. (withdrawn): A perpendicular magnetic head, comprising:
2 a read head element;
3 a first magnetic pole having a pole tip portion thereof that is exposed at an air bearing
4 surface (ABS) of the magnetic head;
5 a second magnetic pole including a portion thereof that is exposed at said ABS;
6 a heating element being disposed between said read head element and said pole tip; and
7 an induction coil layer that is disposed between said first magnetic pole and said second
8 magnetic pole.

1 7. (withdrawn): A perpendicular magnetic head as described in claim 6 wherein said first
2 magnetic pole includes a shaping layer that is disposed in magnetic flux communication with
3 said second magnetic pole, and a probe layer which includes said pole tip, wherein said probe
4 layer is disposed in magnetic flux communication with said shaping layer.

1 8. (withdrawn): A perpendicular magnetic head as described in claim 7 wherein said
2 shaping layer is disposed between said heating element and said pole tip.

1 9. (Currently amended): A hard disk drive including a perpendicular magnetic head,
2 comprising:

3 a media disk being adapted for rotation in a first direction;

4 said magnetic head including:

5 a write head element including a magnetic pole having a pole tip portion thereof that is
6 exposed at an air bearing surface (ABS) of the magnetic head, and disposed to write magnetic
7 bits to portions of said media disk;

8 a heating element being disposed proximate said pole tip, such that said heating element
9 is disposed to heat said portions of said magnetic disk prior to the writing of said magnetic bits to
10 said portions of said media disk;

11 another magnetic pole having a portion thereof that is exposed at said ABS;

12 an induction coil structure that is disposed between said magnetic pole and said another
13 magnetic pole, and wherein said induction coil structure includes a plurality of coil turns and an
14 insulation layer that is disposed upon said coil turns; and

15 wherein said heating element is disposed between said insulation layer and said pole tip.

16 ~~wherein said heating element is disposed between said induction coil structure and said~~
17 ~~pole tip.~~

1 10. (cancelled):

1 11. (Previously presented): A hard disk drive as described in claim 9 wherein said magnetic
2 pole includes a shaping layer that is disposed in magnetic flux communication with said another

3 magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer is
4 disposed in magnetic flux communication with said shaping layer.

1 12. (withdrawn): A hard disk drive as described in claim 11 wherein said shaping layer is
2 disposed between said heating element and said pole tip.

1 13. (original): A hard disk drive as described in claim 11 wherein said probe layer is
2 disposed between said heating element and said shaping layer.

1 14. (withdrawn): A hard disk drive as described in claim 10 wherein said first magnetic pole
2 includes a shaping layer that is disposed in magnetic flux communication with said second
3 magnetic pole, and a probe layer which includes said pole tip, wherein said probe layer is
4 disposed in magnetic flux communication with said shaping layer.

1 15. (withdrawn): A hard disk drive as described in claim 14 wherein said shaping layer is
2 disposed between said heating element and said pole tip.

1 16. (withdrawn): A method for fabricating a perpendicular magnetic head, comprising:
2 fabricating a first magnetic pole upon a layer of the magnetic head, wherein a portion of
3 said first magnetic pole is exposed at an air bearing surface (ABS) of said magnetic head;
4 fabricating a second magnetic pole in magnetic flux communication with said first
5 magnetic pole such that a pole tip portion of said second magnetic pole is exposed at said ABS;
6 fabricating an induction coil between said first magnetic pole and said second magnetic
7 pole;

8 fabricating a heating element within said magnetic head prior to fabrication of said
9 second magnetic pole.

1 17. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 16, wherein said step of fabricating said second magnetic pole includes the steps of
3 fabricating a probe layer that includes said pole tip, and fabricating a shaping layer portion of
4 said second magnetic pole upon said probe layer, wherein said shaping layer is formed in
5 magnetic flux communication with said first magnetic pole.

1 18. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 16, wherein said step of fabricating said second magnetic pole includes the steps of:
3 fabricating a shaping layer portion of said second magnetic pole and wherein said
4 shaping layer is formed in magnetic flux communication with said first magnetic pole, and
5 forming a probe layer upon said shaping layer in magnetic flux communication therewith,
6 and wherein said pole tip is formed as a part of said probe layer.

1 19. (withdrawn): A method for fabricating a perpendicular magnetic head, comprising:
2 fabricating a first magnetic pole upon a layer of the magnetic head, wherein a pole tip
3 portion of said first magnetic pole is exposed at an air bearing surface (ABS) of said magnetic
4 head;
5 fabricating a second magnetic pole in magnetic flux communication with said first
6 magnetic pole such that a portion of said second magnetic pole is exposed at said ABS;
7 fabricating an induction coil between said first magnetic pole and said second magnetic
8 pole;

9 fabricating a heating element within said magnetic head prior to fabrication of said first
10 magnetic pole.

1 20. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 19, wherein said step of fabricating said first magnetic pole includes the steps of
3 fabricating a probe layer that includes said pole tip subsequent to fabricating said heating
4 element, and fabricating a shaping layer portion of said first magnetic pole upon said probe layer.

1 21. (withdrawn): A method for fabricating a perpendicular magnetic head as described in
2 claim 19, wherein said step of fabricating said first magnetic pole includes the steps of:
3 fabricating a shaping layer portion of said first magnetic pole and wherein said shaping
4 layer is formed in magnetic flux communication with said second magnetic pole, and
5 forming a probe layer upon said shaping layer in magnetic flux communication therewith,
6 and wherein said pole tip is formed as a part of said probe layer.

1 22. (Cancelled)

2 23. (Cancelled)